



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|-----------------------------|------------------|
| 09/853,111 | 05/10/2001 | Salman Akram | MIC-0012-D1-US (97-0141) | 7172 |
| 21906 7590 02/19/2004 | | | | |
| TROP PRUNER & HU, PC 8554 KATY FREEWAY SUITE 100 HOUSTON, TX 77024 | | | | |
| | | | EXAMINER | |
| | | | CHAMBLISS, ALONZO | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2827 | |

DATE MAILED: 02/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/853,111

Applicant(s)

SALMAN AKRAM

Examiner

Alonzo Chambliss

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-22,32,34 and 35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-22,32, 34, and 35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 12/1/03 have been fully considered but they are not persuasive.

Applicant's alleges that the examiner has based the rejection on hindsight reconstruction. This is deemed unpersuasive base on the same rationale the second paragraph in the non-final rejection filed on 10/20/03. Furthermore, the examiner does not have to cite a reference in support of the rejection because **well known in the art** was not relied upon in the rejection. The examiner simply responded to applicant's arguments utilizing as an **example** of what was well known in the art.

In regards to the argument that something can be in contact with something else through an intervening element not making any sense. First, the chips can be either **thermally** in contact with each other by the encapsulating material or **electrically** in contact with each other by the lead frame. Second, Figs. 1 and 2 of applicant's instant application shows two chips in contact with one another through an intervening element (i.e. adhesive). Is applicant suggesting that the two chips are directly in contact with each other without an adhesive, which is not shown in the figures. Sota teaches two chips in contact with each other by intervening element (i.e. die pad that includes an adhesive). Therefore, the non-final is maintained and this action it made **final**.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 15-22, 32, 34, and 35 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Sota (U.S. 5,646,829).

With respect to claims 15, 21, and 32, Sota teaches stacking at least two semiconductor dies 1 having substantially the same rectangular dimensions on top of one another by die pad 2 such that one of the dies 1 is mounted on top of the lead frame fingers 3 and the other of the dies 1 is mounted on and in contact (i.e. by way of the die paddle) the die 1 mounted on the lead frame fingers 3 (see Figs. 3b - 3e). Each of the semiconductor dies 1 is wire bonding to the same lead frame fingers 3 (see Figs. 3c -3e).

With respect to Claims 16 and 34, Sota teaches wherein one of the semiconductor dies 1 is mounted back to back on the other of the semiconductor dies 1 (see Figs. 3c-3e).

With respect to Claims 17 and 35, Sota teaches wherein one of the semiconductor dies 1 is adhered to the other of semiconductor dies by an adhesive layer by die bonding agent made of polyimide resin that is heating to form adhesion with the semiconductor dies 1 (see col. 5 lines 5-35).

With respect to Claim 18, Sota teaches wherein a first semiconductor die has a lead-on-chip configuration (see Figs. 3b- 3e).

With respect to Claim 19, Sota teaches wherein one of the dies 1 is secured to the lead frame and the other of the dies is secured to the die 1 by die pad 2 so that the die is secured to the lead frame (see Figs. 3b - 3e).

With respect to Claim 20, Sota teaches wire bonding the semiconductor dies 1 to the lead frame, wherein the dies 1 have facing sides and outwardly facing sides by extending wire to bond pads on the outwardly facing sides of the dies 1 (see Figs. 3c- 3e).

With respect to Claim 22, Sota teaches encapsulating the semiconductor dies 1 and the lead frame in a single package body 7 (see Figs. 3d and 3e).

The prior art made of record and not relied upon is cited primarily to show the process of the instant invention.

Conclusion

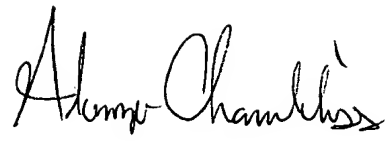
4. Any inquiry concerning the communication or earlier communications from the examiner should be directed to Alonzo Chambliss whose telephone number is (703) 306-9143. The fax phone number for this Group is (703) 308-7722 or 7724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-7956

Application/Control Number: 09/853,111
Art Unit: 2827

Page 5

AC/February 7, 2004

A handwritten signature in black ink, appearing to read "Alonzo Chambliss". The signature is fluid and cursive, with the first name "Alonzo" and last name "Chambliss" clearly distinguishable.

Alonzo Chambliss
Patent Examiner
Art Unit 2827